

CLAIMS

What is claimed is:

1. An aqueous polymer emulsion composition resistant to biodeteriogenic microbe contamination comprising an aqueous polymer emulsion stabilized with a protective colloid and a cationic compound selected from the group consisting of a substituted guanidine salt, a substituted pyridinium salt, a tetrasubstituted ammonium salt, a polymeric cationic compound, and mixtures thereof, wherein the substituted guanidine salt and the substituted pyridinium salt are substituted with an alkyl, a cycloalkyl, or an aryl group containing 2 to 18 carbons and the tetrasubstituted ammonium salt is substituted with one or more of an alkyl, a cycloalkyl, and/or an aryl, said polymer emulsion containing little or no nonionic or anionic surfactants and little or no anionic substituents.
2. The polymer emulsion composition of claim 1, wherein the protective colloid is poly(vinyl alcohol) or hydroxyethyl cellulose.
3. The polymer emulsion composition of claim 1, wherein the protective colloid is poly(vinyl alcohol).
4. The polymer emulsion composition of claim 3, wherein the cationic compound is selected from the group consisting of *n*-dodecylguanidine hydrochloride, cetyl pyridinium chloride, didecyldimethylammonium chloride, poly(hexamethylenebiguanide) hydrochloride, and mixtures thereof.
5. The polymer emulsion composition of claim 3, wherein the cationic compound is *n*-dodecylguanidine hydrochloride.
6. The polymer emulsion composition of claim 3 further comprising one or more other industrial biocide.

7. The polymer emulsion composition of claim 6 wherein the one or more other industrial biocide is 5-chloro-2-methyl-4-isothiazolin-3-one, 2-methyl-4-isothiazolin-3-one, or mixtures thereof.

8. The polymer emulsion composition of claim 3 wherein the polymer emulsion is selected from the group consisting of a poly(vinyl acetate-co-ethylene), poly(vinyl acetate), poly(vinyl acetate-butyl acrylate), poly(vinyl acetate-(2-ethyl)hexyl acrylate), a polyacrylic, a polymethacrylic, a poly(styrene-acrylic), and poly(vinyl chloride-co-ethylene).

9. The polymer emulsion composition of claim 8 wherein the polymer emulsion is a poly(vinyl acetate-co-ethylene) or a poly(vinyl acetate).

10. A method for preventing biodeteriogenic microbe contamination in polymer emulsions containing a protective colloid comprising:

mixing an effective amount of one or more cationic compounds with said polymer emulsion, said cationic compound selected from the group consisting of a substituted guanidine salt, a substituted pyridinium salt, a tetrasubstituted ammonium salt, a polymeric cationic compound, and mixtures thereof, wherein the substituted guanidine salt and the substituted pyridinium salt are each individually substituted with an alkyl, a cycloalkyl, or an aryl group containing 2 to 18 carbons and the tetrasubstituted ammonium salt is substituted with one or more of an alkyl, a cycloalkyl, and/or an aryl, said polymer emulsion containing little or no nonionic or anionic surfactants and little or no anionic substituents.

11. The method of claim 10, wherein the protective colloid is poly(vinyl alcohol) or hydroxyethyl cellulose.

12. The method of claim 10, wherein the protective colloid is poly(vinyl alcohol).

13. The method of claim 12, wherein the cationic compound is selected from the group consisting of *n*-dodecylguanidine hydrochloride, cetyl pyridinium chloride,

didecyldimethylammonium chloride, poly(hexamethylenebiguanide) hydrochloride, and mixtures thereof.

14. The method of claim 12, wherein the cationic compound is *n*-dodecylguanidine hydrochloride.

5 15. The method of claim 12 further comprising mixing one or more other industrial biocide with the polymer emulsion.

16. The method of claim 15 wherein the one or more other industrial biocide is 5-chloro-2-methyl-4-isothiazolin-3-one, 2-methyl-4-isothiazolin-3-one, or mixtures thereof.

10 17. The method of claim 12 wherein the polymer emulsion is selected from the group consisting of a poly(vinyl acetate-co-ethylene), poly(vinyl acetate), poly(vinyl acetate-butyl acrylate), poly(vinyl acetate-(2-ethyl)hexyl acrylate), a polyacrylic, a polymethacrylic, a poly(styrene-acrylic), and poly(vinyl chloride-co-ethylene).

18. The method of claim 17 wherein the polymer emulsion is a poly(vinyl acetate-co-ethylene) or a poly(vinyl acetate).

15 19. The method of claim 12, wherein the amount of the one or more cationic compounds ranges from 10 ppm to 1 wt %, based on the wet weight of the polymer emulsion.

20 20. The method of claim 12, wherein the amount of the one or more cationic compounds ranges from 50 ppm to 5000 ppm, based on the wet weight of the polymer emulsion.

21. An adhesive composition comprising the aqueous polymer emulsion composition of claim 1, wherein said adhesive composition is resistant to biodeteriogenic microbe contamination.

[illegible]

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0 to 5 parts by weight of a thickener;

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0 to 35 parts by weight of a tackifier;

0 to 10 parts by weight of poly(vinyl alcohol); and

0 to 40 parts by weight of a filler.